AUTOMATIC MAPPING LOGIC FOR A COMBUSTOR IN A GAS TURBINE ENGINE

Abstract of Disclosure

A mapping device maps each burner mode at various bleed settings to generate control schedules for a combustion controller that ensure combustion dynamic (acoustic) pressures, and emissions limits and ring flame temperatures are within operational limits. In general, a method of combustor mapping involves adjusting the bulk ring flame temperature to meet emissions and acoustic requirements. The dome (ring) ring flame temperature is then adjusted to determine maximum and minimum ring flame temperature boundary limits. At both the maximum and minimum ring flame temperatures, the emissions levels and acoustic pressures are checked to see that they are within specification limits. If they are not, the bulk ring flame temperature is adjusted, and the entire process is repeated for that bleed setting and burner mode. If the emissions levels and acoustic pressures are within specification limits, then the power is increased to a different mode and bleed setting combination, and the process is again repeated. During each of these steps, mapping data are recorded.

Figures